PATENT CLAIMS

1. Arrangement for hardening a coating of an object, in particular a vehicle body (12), said coating consisting of a material that hardens under electromagnetic radiation, in particular a UV lacquer or a thermally hardening lacquer, with

   a) at least one emitter (46, 48a, 48b, 52a, 52b) that generates electromagnetic radiation;

   b) a conveying system (14, 16) that transports the object (12) into the vicinity of and away from the emitter (46, 48a, 48b, 52a, 52b);

   characterised in that

   the spatial orientation of the at least one emitter (46, 48a, 48b, 52a, 52b) or of a reflector (55) associated therewith can be changed by means of a motor.

2. Arrangement according to claim 1, characterised in that a first emitter (46) extends within a plane that runs substantially parallel to a transporting plane of the conveying system (14, 16) and that the first emitter (46) can be driven by means of a

motor in a direction (62) perpendicular to the transporting plane.

3. Arrangement according to claim 2, characterised in that the arrangement comprises at least two further emitters (48a, 48b, 52a, 52b) that are arranged on both sides of a conveying stretch (14) of the conveying system (14, 16).

4. Arrangement according to claim 3, characterised in that the at least two further emitters (48a, 48b, 52a, 52b) can be driven by means of a motor in directions (54, 56) perpendicular to a conveying direction of the conveying system (14, 16).

5. Arrangement according to claim 4, characterised in that the at least two further emitters (48a, 48b, 52a, 52b) can in each case be tilted or swivelled (58) by means of a motor about an axis parallel to the conveying direction

6. Arrangement according to one of claims 3 to 5, characterised in that the emitters (46, 48a, 48b, 52a, 52b) are secured to a gantry (44) that spans a conveying stretch (14) of the conveying system (14, 16) in a bridge-like manner.

7. Arrangement according to one of the preceding claims, characterised in that the arrangement

comprises a control device (74) by means of which the spatial orientation of the at least one emitter (46, 48a, 48b, 52a, 52b) or of the reflector (55) associated therewith can automatically be adapted to the contours of the object (12).

8. Arrangement according to claim 7, characterised in that by means of the control device (74) the spatial orientation of the at least one emitter (46, 48a, 48b, 52a, 52b) or of the reflector (55) associated therewith can be altered in such a way that, during a conveying movement of the object (12) past the at least one emitter (46, 48a, 48b, 52a, 52b), the amount of electromagnetic radiation incident per unit area on the material and its intensity in each case does not fall below predeterminable threshold values necessary for the hardening.

9. Arrangement according to claim 8, characterised in that the control device (74) is designed so that the amount of electromagnetic radiation incident per unit area on the material remains substantially constant.

10. Arrangement according to claim 8 or 9, characterised in that the control device (74) includes a memory (76) for storing spatial data of the object (12).

11. Arrangement according to one of the preceding claims, characterised in that a measuring station (19) is located upstream of the at least one emitter (46, 48a, 48b, 52a, 52b) in the conveying direction, by means of which station the spatial data of the object (12) can be determined.

12. Arrangement according to claim 11, characterised in that the measuring station comprises at least one light barrier.

13. Arrangement according to claim 11 or 12, characterised in that the measuring station comprises a video camera and a device for digital image recognition.

14. Arrangement according to one of claims 11 to 13, characterised in that the measuring station (19) comprises at least one optical scanner (80) by means of which the object (12) can be scanned in at least one direction.

15. Arrangement according to claim 14, characterised in that the optical scanner (18) comprises an infrared light source.

16. Arrangement according to one of the preceding claims, characterised in that it comprises a housing (24) that is at least virtually gas-tight

and impermeable to electromagnetic radiation, into the interior (32) of which the object (12) can be introduced and in which the at least one emitter (46, 48a, 48b, 52a, 52b) is arranged.

17. Arrangement according to claim 16, characterised in that a protective gas can be fed into the interior (32) of the housing (24).

18. Arrangement according to claim 17, characterised in that the protective gas is heavier than air and is in particular carbon dioxide.

19. Arrangement according to claim 18, characterised in that the protective gas is lighter than air and is in particular helium.

20. Arrangement according to one of claims 17 to 19, characterised in that an inlet (40) for the protective gas is provided in the immediate vicinity of the at least one emitter (46, 48a, 48b, 52a, 52b).

21. Arrangement according to one of claims 16 to 20, characterised in that the housing (24) is covered with a reflecting layer in the vicinity of the at least one emitter (46, 48a, 48b, 52a, 52b).

22. Arrangement according to claim 21, characterised in that the reflecting layer comprises a plurality of unevennesses.

23. Arrangement according to claim 21 or 22, characterised in that the reflecting layer consists of an aluminium foil.

24. Arrangement according to claims 16 and 17, characterised in that a container open to a transporting plane is arranged in the housing (24), which container can be filled with the protective gas.

25. Arrangement according to claims 16 and 17, characterised in that a lock (34, 36) for respectively introducing and removing the object (12) is arranged at an inlet and at an outlet of the housing (24).

26. Arrangement according to claim 25, characterised in that an inlet for protective gas is arranged within the entry-side lock in such a way that a cavity present in the object is flushed out with protective gas.

27. Arrangement according to claims 16 and 17, characterised in that a device (42) is provided for

removing oxygen from the atmosphere contained within the housing (24).

28. Arrangement according to claim 27, characterised in that the device (42) for removing oxygen comprises a catalyst (92) for the catalytic binding of the oxygen.

29. Arrangement according to claim 27 or 28, characterised in that the device (42) for removing oxygen comprises a filter for absorbing oxygen.

30. Arrangement according to one of claims 27 to 29, characterised in that the device for removing oxygen comprises a filter for adsorbing oxygen.

31. Arrangement according to one of the preceding claims, characterised in that a reflector (55, 100) for concentrating the radiation is associated with the at least one emitter (46), the shape of which reflector can be altered in order to change the radiation concentration.

32. Arrangement according to one of the preceding claims, characterised in that a moveable reflector is associated with the at least one emitter (46, 48a, 48b, 52a, 52b) on the side facing away from the object.

33. Arrangement according to one of the preceding claims, characterised in that it comprises a preheating zone (22) for removing solvents from the material of the coating.

34. Arrangement according to one of claims 1 to 32, characterised in that it comprises a preheating zone (22) for gelling pulverulent material of the coating.

35. Arrangement according to one of the preceding claims, characterised in that it comprises a post-heating zone (26) for completing the hardening.

36. Arrangement according to one of the preceding claims, characterised in that the electromagnetic radiation is UV light.

37. Arrangement according to one of the preceding claims, characterised in that the electromagnetic radiation is IR radiation.